Summary

The evolution of **higher education** and **technological advancements** has transformed the **accessibility** and understanding of complex subjects, such as quantum computing.
Traditionally, higher education has focused on **specialized knowledge**, making it challenging for individuals to explore diverse fields beyond their expertise. However, modern technologies have **democratized** access to information, enabling **non-experts to engage** with complex topics.

Quantum computing, grounded in the principles of quantum mechanics, is notoriously complex and has historically been accessible only to a **select few**. This exclusivity presents a **challenge** for those outside the field who wish to explore the possibilities of quantum technologies.
Recognizing this **gap**, the potential of **ChatGPT** to make quantum computing more **approachable** and understandable to non-experts can be explored. This exploration is not just about enhancing the functionality of ChatGPT but about **envisioning** a future where **quantum computing is accessible** to all, transforming the landscape of computation and innovation.

This research serves as an initial validation of the potential for large language models to act as an **accessibility layer** [FIG. 01] to quantum computing, having as a design tool the newly created **Quantum Buddy 2.0** [FIG. 02], a custom GPT-4, fine-tuned through iterative feedback and testing.

A key part of the study is the development of a set of **tasks** designed to serve as **benchmarks** for **evaluating** the performance of large language models. Among these, one task was designed to enable those without a background in quantum mechanics to solve quantum encryption problems. Another task involved a test comparing Quantum Buddy in its previous versions with the standard model of ChatGPT. This comparison not only highlights the capabilities of these models but also provides insight for future evaluations. By utilizing these models, non-experts participants can now **design and create with quantum computing**, suggesting a future where **quantum development** moves forward rapidly.

The research thus demonstrates that **ChatGPT significantly simplifies the process of programming** quantum computers, facilitating learning and performance across a broad spectrum of abilities. It enables novices to engage in creative coding, allows coders to gain insights into quantum mechanics, and enhances the efficiency of quantum experts. This variety in application underscores ChatGPT's role in **democratizing access** to quantum computing.

However, it is important to recognize that these findings represent the **beginning** of a much larger exploration. The evidence provided by the study points to a future where **ChatGPT** and similar large language models **significantly enhance the non-experts access** to quantum computing. Despite the progress made, the journey is not without its **challenges**. The evolving capabilities of ChatGPT, along with the dynamic nature of programming languages and quantum computing itself, require ongoing adaptation and enhancement.

Overall, the research contributes to a foundational **understanding** of how large **language models** like ChatGPT can **make quantum computing more accessible.** This work lays the groundwork for **further studies and developments**, signaling a promising direction for the broader application and understanding of quantum computing technologies.

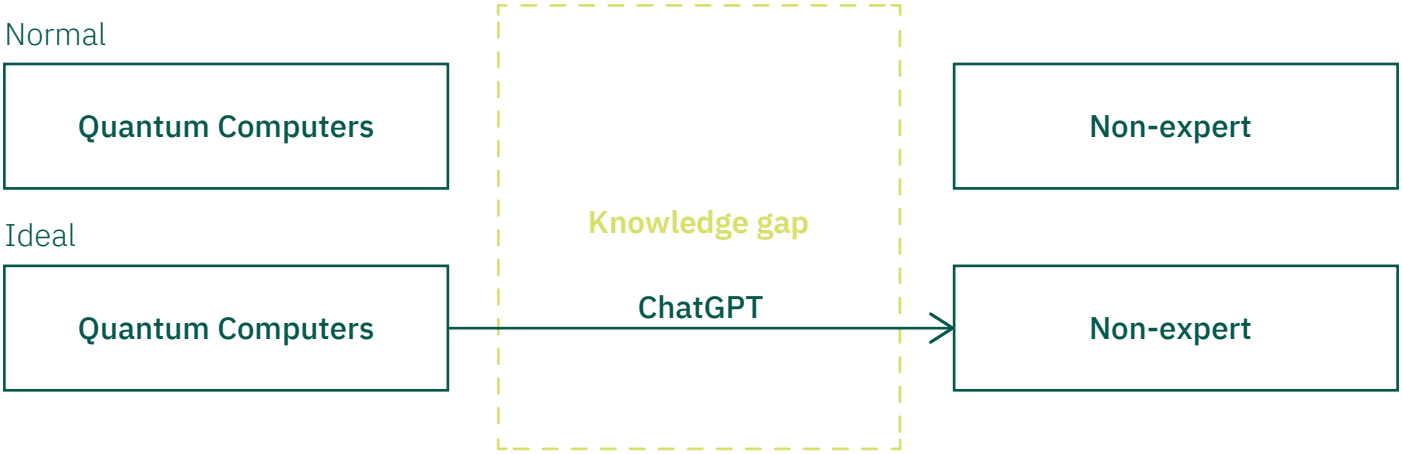

FIG. 01 - ChatGPT as an accessibility layer between quantum computers and everyday users

FIG. 02 - A screenshot of Quantum Buddy 2.0